CLAIMS

What is claimed is:

1	1.	A packet	optimization	method	comprising	ζ:
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- 2 generating a metric to indicate a channel condition;
- 3 processing the metric to determine optimal packet-size for the channel
- 4 condition; and
- 5 choosing the optimal packet-size corresponding to the processed metric to
- 6 send to a requestor.
- 1 2. The packet optimization method of claim 1, wherein processing further
- 2 includes:
- 3 receiving the metric corresponding to the channel condition; and
- 4 using the received metric to balance a trade-off between the cyclic
- 5 redundancy check and re-transmission overhead.
- 1 3. The packet optimization method of claim 1, wherein choosing the optimal
- 2 packet further includes training a neural network or look-up table to optimally
- 3 improve system data throughput by selecting a packet corresponding to the
- 4 channel condition.
- 1 4. The packet optimization method of claim 1, wherein the optimal packet-
- 2 size being a packet-size that minimizes both cyclic redundancy check and re-
- 3 transmission overhead.
- 1 5. The packet optimization method of claim 1, wherein the metric being a
- 2 frame error rate
- 1 6. The packet optimization method of claim 1, wherein the metric being a
- 2 function of a packet error rate selected from a group consisting of frame error

- 3 rate (FER), signal to noise ratio estimate (SNR), energy per bit (Eb) / Thermal
- 4 noise (Nt) estimate, and system time or finger time drift rate.
- 1 7. An apparatus comprising:
- 2 a memory to store a metric and packet; and
- a processor to generate a metric indicating a channel condition, to process
- 4 the metric to determine optimal packet-size for the channel condition, and to
- 5 choose the optimal packet-size corresponding to the processed metric to send to
- 6 a requestor.
- 1 8. The apparatus of claim 7, wherein the processor is to receive the metric
- 2 corresponding to the channel condition, and use the received metric to balance
- 3 trade-off between the cyclic redundancy check and re-transmission overhead.
- 1 9. The apparatus of claim 7, wherein the processor is to train a neural network
- 2 or look-up table to optimally improve system data throughput by selecting a
- 3 packet corresponding to the channel condition.
- 1 10. The apparatus of claim 7, wherein the processor is to choose an optimal
- 2 packet-size that minimizes both cyclic redundancy check and re-transmission
- 3 overhead.
- 1 11. The apparatus of claim 7, wherein the processor is to use the metric
- 2 corresponding to frame error rate
- 1 12. The apparatus of claim 7, wherein the metric being a function of a packet
- 2 error rate selected from a group consisting of frame error rate (FER), signal to
- 3 noise ratio estimate (SNR), energy per bit (Eb) / Thermal noise (Nt) estimate,
- 4 and system time or finger time drift rate.

1	13.	A storage medium having stored therein a plurality of machine executable				
2	instructions, wherein when executed, the instructions perform a method					
3	com	comprising:				
4		generating a metric to indicate a channel condition;				
5		processing the metric to determine optimal packet-size for the channel				
6	con	dition; and				
7		choosing the optimal packet-size corresponding to the processed metric to				
8	send to a requestor.					
1	14.	The storage medium of claim 13, wherein processing further includes:				
2		receiving the metric corresponding to the channel condition; and				
3		using the received metric to balance trade-off between the cyclic				
4	redundancy check and re-transmission overhead.					
1	15.	The storage medium of claim 13, wherein choosing the optimal packet				
2	further includes training a neural network or look-up table to optimally improve					
3	system data throughput by selecting a packet corresponding to the channel					
4	cond	lition.				
1	16.	A method of preventing system overload in a base station or mobile data				
2	tran	smission system comprising:				
3		estimating likelihood of packet transmission error in a system;				
4		determining a radio link protocol (RLP) packet-size corresponding to the				
5	estimated likelihood of packet transmission error; and					
6		sending the RLP packet to a base station or mobile data transmission				
7	syste	em.				
1	17.	The method of claim 16, wherein determining the RLP packet-size further				
2	inclu	ndes:				
3		allowing a base station or mobile data transmission system to request a				
4		age for the RLP packet-size; 8.P347 20				

5	selecting a RLP packet from a predetermined table that corresponds in size
6	to the size requested by the base station or mobile data transmission system; and
7	sending the selected RLP packet to the base station or mobile data
8	transmission system.

- 1 18. The method of claim 17, wherein the base station or mobile data
- 2 transmission request being limited to a predetermined number of requests.
- 1 19. An apparatus comprising:
- a memory to store an RLP packet; and
- a processor to estimate likelihood of packet transmission error in a system,
 to determine a radio link protocol (RLP) packet-size corresponding to the
 estimated likelihood of packet transmission error, and to send the RLP packet to

6 a base station or mobile data transmission system.

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- 1 20. The apparatus of claim 19, wherein the processor is to allow a base station
- 2 or mobile data transmission system to request a change for the RLP packet-size,
- 3 to select a RLP packet from a predetermined table that corresponds in size to the
- 4 size requested by the base station or mobile data transmission system, and to
- 5 send the selected RLP packet to the base station or mobile data transmission
- 6 system.

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- 1 21. The apparatus of claim 20, wherein the processor is to limit the request
- 2 from the base station or mobile data transmission to a predetermined number of
- 3 requests.

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- 1 22. A storage medium having stored therein a plurality of machine executable
- 2 instructions, wherein when executed, the instructions perform a method
- 3 comprising:
- 4 estimating likelihood of packet transmission error in a system;

5	determining a radio link protocol (RLP) packet-size corresponding to the		
6	estimated likelihood of packet transmission error; and		
7		sending the RLP packet to a base station or mobile data transmission	
8	syst	em.	
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1	23.	The storage medium of claim 22, wherein determining the RLP packet-size	
2	further includes:		
3		allowing a base station or mobile data transmission system to request a	
4	change for the RLP packet-size;		
5		selecting a RLP packet from a predetermined table that corresponds in size	
6	to th	ne size requested by the base station or mobile data transmission system; and	
7		sending the selected RLP packet to the base station or mobile data	
8	transmission system.		
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1	24.	The storage medium of claim 22, wherein the base station or mobile data	
2	tran	smission request being limited to a predetermined number of requests.	
1	25.	A method of optimizing packet-size comprising:	
2		storing at least one radio link protocol (RLP) packet in a physical layer; and	
3		predetermining the RLP packet-size by empirical experimentation.	
1	26.	The method of claim 25, wherein the empirical experimentation includes	
2		simulating a condition with a particular metric value;	
3		adjusting packet-size manually corresponding to the metric value; and	
4		recording packet-size data for the metric value to obtain maximum system	
5	thro	ughput.	
1	27.	The method of claim 25, wherein the predetermining further includes	
2	storing a metric value in a lookup table and obtaining an optimum packet-size		
3	corresponding to the stored metric value.		

- 1 28. The method of claim 25, wherein the RLP packet includes cyclic
- 2 redundancy check bits to provide error-checking capability for the RLP packet.
- 1 29. An apparatus comprising:
- a memory to store an radio link protocol (RLP) packet, and empirical
- 3 experimentation data;
- 4 a processor to store at least one RLP packet in a physical layer, and to
- 5 predetermine the RLP packet-size by empirical experimentation.
- 1 30. The apparatus of claim 29, wherein the processor to perform empirical
- 2 experimentation is to simulate a condition with a particular metric value, to
- 3 adjust packet-size manually corresponding to the metric value, and to record
- 4 packet-size data for the metric value for obtaining maximum system throughput.
- 1 31. The apparatus of claim 29, wherein the processor is to store a metric value
- 2 in a lookup table and is to obtain an optimum packet-size corresponding to the
- 3 stored metric value.
- 1 32. The apparatus of claim 29, wherein the RLP packet includes cyclic
- 2 redundancy check bits to provide error-checking capability for the RLP packet.
- 1 33. A storage medium having stored therein a plurality of machine executable
- 2 instructions, wherein when executed, the instructions perform a method
- 3 comprising:
- 4 storing at least one radio link protocol (RLP) packet in a physical layer; and
- 5 predetermining the RLP packet-size by empirical experimentation.
- 1 34. The storage medium of claim 33, wherein the empirical experimentation
- 2 includes
- 3 simulating a condition with a particular metric value;
- 4 adjusting packet-size manually corresponding to the metric value; and 80398.P347 23

- 5 recording packet-size data for the metric value to get maximum system
- 6 throughput.
- 1 35. The storage medium of claim 33, wherein the predetermining further
- 2 includes storing a metric value in a lookup table and obtaining an optimum
- 3 packet-size corresponding to the stored metric value.
- 1 36. The storage medium of claim 33, wherein the RLP packet includes cyclic
- 2 redundancy check bits to provide error-checking capability for the RLP packet.